occasionally more than moderate, "pain" during the first day or two after the procedure.

Not everyone is an appropriate candidate for excimer laser photorefractive keratectomy. Coexisting severe ocular disease, such as glaucoma or dry eye, may disqualify a patient from consideration. In addition, it is important that patients have appropriate expectations regarding the outcome of the procedure. A patient who wishes to reduce dependence on corrective lenses for most activities of daily living may be an appropriate candidate, but a person who demands "perfect" uncorrected vision after surgical treatment and a total elimination of spectacles or contact lenses for all tasks should be counseled not to have the procedure at this time.

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New Agents for the Treatment of Glaucoma

GLAUCOMA IS a disease state where the intraocular pressure is too high for the health of the optic nerve. This causes a progressive but treatable optic neuropathy affecting 5 to 10 million North Americans. At a clinical detection rate of 50%, upwards of 116,000 people in the United States are blind in both eyes as a result of this disease. Glaucoma is more common among elders in whom a large number of concurrent medical conditions may exist. Existing agents used in the treatment of glaucoma may have decreased usefulness in this patient population because of preexisting or developing cardiopulmonary problems, allergy, depression or other alterations in mentation, nephrolithiasis, or induced visual disturbances. Clinicians caring for patients with glaucoma have welcomed the introduction of two new agents for the treatment of the disease.

Latanoprost 0.005% (Xalata) is a new phenyl-substituted prostaglandin ($PGF_2\alpha$) analogue. It is the first drug in a new class of ocular hypotensive agents. Extremely potent, it is a lipophilic prodrug that is activated by enzymatic hydrolysis of an ester linkage. It has an unusual mechanism of action: it increases the uveal scleral (nontrabecular) outflow. Agents affecting trabecular outflow or aqueous production have a pressure-lowering limitation set by the episcleral venous pressure. Latanoprost, therefore, has a theoretical advantage because intraocular pressures can be lowered below the episcleral venous pressure. Before US Food and Drug Administration approval, this pharmaceutical agent was studied in more than 800 patients at three separate centers in the United States, Great Britain, and Scandinavia. In Great Britain and Scandinavia, it was found to be equally efficacious to timolol maleate 0.5% (Timoptic). In the United States, it was found to be more efficacious ($P < .001$) than timolol maleate 0.5%. In these studies, foreign body sensation, stinging, punctate epithelial keratopathy, and pain occurred with both agents to varying amounts. Conjunctival hyperemia, although mild and primarily cosmetic, was more common in patients treated with latanoprost ($P < .001$). Although the cardiopulmonary safety profile of this agent is excellent, it does produce an interesting ocular side effect. The use of this agent can result in a progressive darkening of the iris (10%). This effect has been extensively investigated and has found to be due to the increased production of melanin by melanocytes and is not related to an increased number of melanocytes.

Brimonidine tartrate 0.2% is a potent and highly selective α_2-adrenergic agonist that decreases the intraocular pressure by decreasing aqueous production and increasing uveal scleral outflow. Brimonidine is the second agent available for use in the treatment of glaucoma in the α-adrenergic agonist class. It differs from apraclonidine hydrochloride (Iopidine) by the addition of a quinoxaline ring system to the parent molecule and use of bromine rather than chlorine substitution. Brimonidine has been shown to be 30 times more selective than apraclonidine for the α_2- versus α_1-adrenergic receptors. In clinical trials at twice-a-day dosing, brimonidine tartrate 0.2% has been more efficacious than betaxolol hydrochloride (Betoptic-s 0.25%, twice a day) and comparable in efficacy to timolol maleate 0.5% (Timoptic 0.5%, twice a day). Tachyphylaxis with the use of brimonidine has not been a notable problem, but ocular allergy ($P < .001$), dry mouth ($P < .001$), and conjunctival follicles ($P = .001$) were more common in patients treated with brimonidine, whereas burning and stinging were more common in patients treated with timolol maleate ($P < .001$). Drowsiness occasionally occurs with use. These two agents are effective and welcome additions to the glaucoma armamentarium.

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